



MONETARY POLICY AND ITS IMPLICATION FOR BALANCE OF PAYMENT STABILITY IN NIGERIA BETWEEN 1986-2015



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ABSTRACT

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An assessment of the impact of monetary policy on balance of payments in Nigeria from 1986-2015 was investigated. The data used for this study is mainly secondary data and was analyzed using ARDL co integration technique. The results showed the net trade (NT), money supply (M2) and bank credit to private sector (BCP) all have long run effect on the balance of payment while the differenced money supply (DM2), net trade and bank credit all showed the short run relationship with the balance of payment. From the overall analyses done on the variables, it was concluded that all variables exhibited relationships both in the long and short run respectively i.e are jointly significant. It's therefore recommended that government through the monetary authority should ensure that the domestic money stock is consistent with macroeconomic objectives, put adequate policies in place that will stabilize money circulation in order to avoid excess liquidity in the economy which may lead to inflation. Export diversification and non-oil sector exports should be encouraged as this will enhance BOP position in Nigeria.

Contribution/ Originality: This study contributes to existing literature by evaluating monetary policy and its implication for balance of payment stability in Nigeria between 1986-2015. This study uses new estimation methodology to analyse the variables by using ARDL cointegration technique. The paper's primary contribution is finding that all the variables used in the model exhibited a long and short run relationship respectively and were significant. This study documents the originality of this article.

1. INTRODUCTION

Monetary Policy according to Imoughele and Ismaila (2015) is one of the Macroeconomic instrument with which monetary authority in a country employs in the management of their economy in order to attain desired objectives. It also entails those actions initiated by the Central Bank of Nigeria which aims at influencing the cost and availability of credits (Horwitz, 1969; Wrightman, 1976; Nwankwo, 1991). For most economics, Nigerian economy inclusive, the objectives of Monetary Policy includes price stability, maintenance of Balance of payment equilibrium, promotion of employment and output growth. Gbosi (2002) posits that monetary policy aims at controlling money supply so as to counteract all undesirable trends in the economy, these undesirable trends may

include; unemployment, inflation, sluggish economic growth or disequilibrium in the balance of payments. Udude (2015) stated that monetary policy may either be expansionary or restive. An expansionary monetary policy is designed to stimulate the growth of aggregate demand through increase in the money supply thereby making credit more available and interest rate lower. Thus, to regulate monetary policy in the Nigeria economy, the Central Bank of Nigeria (CBN) employs various instruments which include; Open Market Operation (OMO), Reserve Requirement (RR), e.t.c. The success of monetary policy depends on the operating economic enforcement, institutional frame work adopted and the choice and mix of the instrument used. However, the current monetary policy frame work focuses on the maintenance of price stability and balance of payments equilibrium, while the promotion of economic growth and employment generation are secondary goals of the policy.

Tijani (2014) asserted that in achieving stability in balance of payment disequilibrium, it is undoubtedly the primary aim of monetary theory of balance of payment. However the two phases devised are before and after the Structural Adjustment Programme in Nigeria (SAP) of 1986. The first phase placed importance in direct monetary control, the economic environment associated with monetary phenomenon before 1986 was characterized by the dominance of all sectors in the economy and over dependence on the external sector. The major sources of problem in monetary management were the nature of the monetary frame work, the interest rate regime and non-harmonization of fiscal and monetary policy, the oil boom era that led into rapid monetization of foreign exchange earnings resulted in large increase by government expenditure, which contributed to monetary instability in the early 1980, this was done in order to maintain price stability and healthy balance of payment position, the monetary control, interest rate, exchange rate, cash reserve requirement and special deposit. The use of market based instrument was not feasible at that point because of the under development nature of the financial market and deliberation restraint on interest rate. The most accepted instrument of monetary policy as a concept of monetary phenomenon was the issuance of credit rationing guidance. The second phase relied on market mechanism, the object use of monetary phenomenon since 1986 have remained the same as in the earlier period for the stimulation of output on employment, promoting of unknown and external stability. The introduction of Structural Adjustment Programme (SAP) was adopted in July 1986, the reintroduction of the Dutch Auction System (DAS) of foreign exchange management in July 2002 and introduced a set of prudential guideline for licensed banks in 1990. Policy measures were adopted and designed to promote a stable macro-economic environment to achieve a non-inflationary output growth and for the deregulation of external trade and payment arrangement to achieving fiscal balance and monetary balance of the balance of payment viability and the adoption of market force as a major determinants of economic activity (CBN, 2006).

Sequel to the above, efforts has been made by Central Bank and Monetary Authorities to drastically reduce the balance of payments instability in the economy. This has been done through the formulation and implementation of appropriate monetary policy measures, therefore this study intends to evaluate monetary policy and its implication for balance of payment stability in Nigeria with a special reference to 1986-2015.

2. LITERATURE REVIEW

The Nigerian Economy, as in other countries has an apex bank; Central Bank of Nigeria (CBN), which has the authority and mandate of manipulating or regulating monetary policies, using monetary instruments with the aim of achieving desired macro-economic objectives. In Nigeria, these broad objectives include the mandate to conduct and regulate monetary and financial policies with a view to promoting economic growth and development in Nigeria, Nkoro (2003). Fasanya *et al.* (2013) asserted that the major two goals of monetary policy are inflation targeting and exchange rate policy with the assumption that these are essential tools of achieving macro-economic stability.

According to Central Bank of Nigeria (CBN) excess supply of money will result in an excess demand for goods and services which in turn raises prices and reduces balance of payment, on the other hand, inadequate supply of money retards growth and development.

Nneka (2012) argues that monetary policy need be efficacious with regular information network system; she also said that Nigeria lacks the fundamental flexibilities which could have aided a more effective use of monetary policy. Obviously, the empirical studies on monetary policy and balance of payment stability in Nigeria are still scanty.

The balance of payment as defined by Imoughele and Ismaila (2015) in Sloman (2004) is a systematic, record of economic and financial transactions for a given period of time, say one year, between residents of an economy and non-resident and the rest of the world. A negative balance of payments means that more money is flowing out of the country, vice versa. BOP may be used as an indicator of economic growth and political stability.

3. EMPIRICAL REVIEW AD THEORETICAL FRAMEWORK

Alexander (2013) in a study of Ghana BOP monetary approach from 1980-2010 using Dicker fuller model. He found that inflation is statistically insignificant but 1% increase in domestic credit leads to 6.6% decrease in reserves, which implies that excessive generation of credit causes discrepancy in reserves. He concluded that though monetary variables are not solely responsible for the disequilibrium in balance of payment; factor such as government expenditure also may play a role.

It was revealed from the study by Akpansung (2013) when the balance of payment of Nigeria and some other countries were indiscriminately chosen and reviewed by him. The study stated that most of the empirical studies of monetary approach reviewed established stability of money demand functions and also showed evidence of causal relationships that exist between domestic credit and balance of payments. The growth in income and price have positive effect on balance of payment (ie surpluses), while growth in the domestic credit have negative effect on BOP (ie deficit) which results into reserve outflows. This also mean that BOP is evidently a monetary phenomenon, (Mudel, 1968). As a result, to cleverly correct any disequilibrium in a country's reserves, adjustment of domestic credits, demand and foreign trade balance's size, is necessary (Akpansung, 2013). According to him, a side by side employment of both devaluation and restrictive monetary policies by the monetary authorities was predicted especially in the absorbing and third world countries, like Nigeria, Akpansung (1998;2013). Nevertheless this conclusion is slightly in variance to the modified monetary approach to devaluation as propounded by Johnson and Frenkel (1976) and elaborated by Connoly and Taybr 1976,1979 which was employed by Nyong and Obafemi (1995).

Tijani (2014) empirically analyzed Balance of payments adjustment mechanisms using monetary channel in Nigeria from 1970-2010. The regression analysis found a positive relationship between the BOP and domestic credit, exchange rate and Balance of trade while inflation rate and GDP have a negative effect and concluded that monetary measures constitute immensely to the position of BOP, cause disturbances and also serve as adjustment mechanism to bring BOP to equilibrium depending on its application and policy mix by monetary authority.

Imoisi *et al.* (2013) studied the efficiency of monetary policy in achieving BOP stabilities in Nigeria from 1980-2010 using Ordinary Least Squares (OLS) technique of multiple regressions. The estimated result shows a positive relationship between the Bop and the monetary variables of money supply, exchange rate and Interest rate. Specifically, money supply and interest rate had significant relationship with BOP, whereas exchange rate was not statistically significant. They concluded that the government should promote the exportation of Nigerian products especially the non-oil products, as this will bring in more foreign exchange earning into the country, best productive activities and improve the BOP position of the country.

Ajayi (2004) examined the determinants of balance of payment in Nigeria between 1970-2010. The study employed the co-integration method to assess the long run impact of macroeconomic variables and found a negative

significant relationship between monetary policy instruments (ie monetary policy rate and money supply) and balance of payment. The study concluded that a lower exchange and lesser monetary policy rate will raise the balance of payments of the Nigerian economy.

Udude (2015) investigated empirically the impact of monetary policy on Nigeria BOP. The study conducted using Ordinary Least Square (OLS) technique of multiple regression models using statistical time series data from 1986-2010. Secondary data on (BOP) was used as the dependent variable, broad money supply (Ms), interest rate (INTR), exchange rate (EXR) which represented the explanatory variables and sourced data from CBN publications where first tested for the presence of unit root using the Augmented Diskney Fuller tasks while Johansen Co-integration test was used to test for regular relationship between the dependent and independent variables. The results indicated that none of the variables were stationary after first difference at 5 and 1 percent level of significance and the Johansen Co-integration test revealed the presence of a long run relationship aim on the variable. Ordinary least square (OLS) technique was employed to estimate the individual parameter and the result indicated that the coefficient of Ms and EXR were positive while those of Interest and GDP were negative. However all parameter coefficient except interest rate were statistically significant.

3.1. The Monetary Theory of Balance of Payment

Alexander (1952) presentation of the absorption approach contains seeds of the monetary approach to balance of payments, which sprang out in the 1960s as part of the monetarist anti-Keynesian revival. The theoretical analysis of the monetary approach comes from the writings of Mudel (1968); Johnson (1977); Johnson (1975; 1976) and Mussa (1976) even though the arguments for the relationship between the foreign sector and the domestic sector of an economy through the working of the monetary sector can be traced to Hume (1752) price specie flow mechanism. The monetary approach observes balance of payments instability as disequilibrium in the demand and supply of money stock. This approach analysis centers on the monetary-account of the balance of payments in the context of a general equilibrium analysis. Thus, "the balance of payments is a monetary and not a real phenomenon and balance of payments disequilibria are stock and not flow disequilibria" (Johnson, 1975).

The formal monetary approach to balance of payments model based on Johnson (1976) specifies a money supply identity, a money demand function and an equilibrium condition.

The model consists of the following set of equations:

1. $M^s = (R + D)$
2. $M^d = L(Y, P, I)$
3. $M^s = M = M^d$

Where:

M^s = money supply;

R = international reserves;

D = domestic credit;

M^d = money demand;

V = level of real domestic income;

P = price level;

I = rate of interest; and

M = equilibrium stock of money.

The equation postulates that money supply is determined by the availability of international reserves and the level of domestic credit created by the country's monetary reserves, while the equation sets out the real demand for money as a function of real income, the inflation rate and the interest rate. The monetary theory states that there is a positive relationship between money held and income ($\delta M^d / (\delta Y > 0)$) and money held and the price level ($(\delta M^d / (\delta P > 0)$), and a negative relationship between money held and the interest rate ($(\delta M^d / (\delta I < 0)$). Equation 8 is the

equilibrium condition in the money market. By placing the variables in percentage changes, and isolating reserves as the dependent variable, we may write the reserve flow equation as follows:

$$1. (\delta R = \delta [L(Y,P,1)] - (\delta D) \dots \dots \dots$$

It postulates that the balance of payments is the outcome of the divergence between the growth of the demand for money and the growth of domestic credit, with the monetary consequences of the balance of payments bringing the money market into equilibrium. An increase in domestic credit brings about an opposite and equivalent change in international reserves, given a stable demand function for money. The coefficient of δD is thus known as an offset coefficient. It shows the extent to which changes in domestic credit are offset by changes in international reserves. The monetary approach predicts a value of minus unity for this coefficient in the reserve flow equation. Most of the empirical studies on the monetary approach confirm this result. (See for instance, (Sohrab, 1985; Kennan, 1989; Dhliwayo and Moyo, 1990)).

3.2. Sources of Data

The data used for this study is mainly secondary data. Some of these data sources include the publications of Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS). To make an assessment of the impact of monetary policy on balance of payments in Nigeria from 1986-2015

4. METHODOLOGY

The model was analyzed using ARDL co integration technique. The advantage of this technique is that it does not require pretests for unit roots unlike other techniques. Consequently, ARDL co integration technique is preferable when dealing with variables that are integrated of different order, $I(0)$, $I(1)$ or combination of the both and, robust when there is a single long run relationship between the underlying variables in a small sample size. The long run relationship of the underlying variables was detected through the F-statistic (Wald test). In this approach, long run relationship of the series is said to be established when the F-statistic exceeds the critical value band. The major advantage of this approach lies in its identification of the co integrating vectors where there are multiple co integrating vectors. However, this technique will crash in the presence of integrated stochastic trend of $I(2)$. To forestall effort in futility, it may be advisable to test for unit roots, though not as a necessary condition.

4.1. Model Specification

The model for this study is based on the theoretical frame work of impact of monetary policy on balance of payment stability in the Nigerian Economy. In Nigeria many known researchers have identified the contemporary relationship between balance of payment and other macroeconomic monetary variables, the study adopts the model used by Magee (1976) which is modified and used in this study. In Magee's work, he examined the effect of monetary variables such as price stability interest made and nominal domestic credit on the balance of payment (BOP). In addition to the variables used by Magee, exchange rate, broad monetary supply, Net trade, interest rate and bank credit to the private sector are explanatory variables. This could be stated mathematically as follows:

$$BOP = f(M2, NT, EXR, IR, BCP, INF) \dots \dots \dots (\text{equ 1})$$

Where;

M2 = Money Supply

NT = Net trade

EXR = Exchange rate

IR = Interest rate

BCP = Bank Credit to the Primary Sector

INF = Inflation

Introducing the constant term and the error coefficient we have the operational specification of the model as:

$$\text{BOP} = \alpha_0 + \alpha_1 M2 + \alpha_2 \text{NT} + \alpha_3 \text{EXR} + \alpha_4 \text{IR} + \alpha_5 \text{BCP} + \alpha_6 \text{INF} + e \quad \text{-----equ (2)}$$

4.2. A Priori Expectations

Based on economic theory, an increase in money supply will bring about an increase in the total money in circulation in the country. This will therefore increase aggregate demand and lead to a rise in production activities and investment opportunities in the economy. This rise in the production activities in the economy will lead to a rise in the export of goods and services, leading to a rise in the export of goods and services, thus leading to a rise in balance of payment position of the country. Hence, the coefficient of M2 will be positive, $\alpha_1 M2 > 0$. The depreciation in the domestic currency due to increase in exchange will make exports and imports expensive in the international markets for goods and services. As a result of this goods and services would be more in demand thus, leading to a rise in the balance of payments position of the country, hence, $\alpha_2 \text{NT} > 0$. Theoretically, it is expected that low exchange rate will encourage importation in an import dependent economy like Nigeria. Hence the balance of payments will reduce causal disequilibrium in the BOP. In Nigeria, the relationship between balance of payment and exchange rate is relative ie $\alpha_3 \text{EXR} < 0$. Also, from economic theory, an increase in the rate of interest will discourage investors from borrowing funds from the financial sector, thus reducing the level of investment and productive activities in the economy. Hence the coefficient of interest rate will be negative; $\alpha_4 \text{IR} < 0$. It is expected that bank credit would have a negative relationship with BOP ie. $\alpha_5 \text{BCP} < 0$. Finally when there's inflation in an economy, people tend to rely on imported goods whose price does not change, therefore it brings about unfavorable BOP, $\alpha_6 \text{INF} < 0$

Table-1. Data presentation

Year	BOP (N'MILLION)	Money Supply (N'BILLION)	Net Trade	Exchange Rate (N/US doll)	Interest Rate(%)	BCP(N'BILLION)	Inflation Rate (%)
1986	-4099.1	23.81	5114.8	2.0206	9.96	15.25	5.72
1987	-17964.8	27.57	15374.4	4.0179	13.96	21.08	11.29
1988	-20795.0	38.36	18712.1	4.5367	16.62	27.33	54.51
1989	-22993.5	45.90	25483.7	7.3916	20.44	30.40	50.47
1990	-5761.9	52.86	36957.7	8.0378	25.3	33.55	7.36
1991	-15796.6	75.40	73760.8	9.9095	20.04	41.35	13.01
1992	-101404.9	111.11	109279.5	17.2984	24.76	58.12	44.59
1993	-41736.8	165.34	110626.9	22.0511	31.65	127.12	57.17
1994	-42623.3	230.29	107722.7	21.8861	20.48	143.42	57.03
1995	-195216.3	289.09	463223.8	21.8861	20.23	180.00	72.84
1996	-53152.0	345.85	330261.7	21.8861	19.84	238.60	29.27
1997	1076.2	413.28	560701.5	21.8861	17.8	316.21	8.53
1998	-220671.32	488.15	577470.8	21.8861	18.18	351.96	10
1999	-326634.28	628.95	600828.674	92.6934	20.29	431.17	6.62
2000	314139.15	878.46	712607.16	102.1052	21.27	530.37	6.93
2001	24729.90	1269.32	1046802.12	111.9433	23.44	764.96	18.87
2002	-563483.90	1505.96	1130618.65	120.9702	24.77	930.49	12.88
2003	-162298.24	1952.92	1607958.1	129.3565	20.71	1,096.54	14.03
2004	1124157.23	2131.82	1782239.9	133.5004	19.18	1,421.66	15
2005	-2394864.30	2637.91	1927372.07	132.1470	17.95	1,838.39	17.86
2006	-2206500.50	3797.91	1969395.04	128.6516	16.9	2,290.62	8.24
2007	-1811849.38	5127.40	2499088.77	125.8331	16.94	3,680.09	5.38
2008	-2458305.37	8008.20	3708635.13	118.5669	15.48	6,941.38	11.58
2009	-3920547.14	9411.11	3854442.93	148.8802	18.36	9,147.42	11.54
2010	-2298564.44	11034.94	5674597.01	150.2980	17.59	10,157.02	13.72
2011	-505385.29	12172.49	7017830.22	153.8616	16.02	10,660.07	10.84
2012	-787.25	13895.39	6,874.8	157.4994	16.79	14,649.28	12.22
2013	-4205.70	15160.29	7,387.9	157.3112	16.72	15,751.84	8.48
2014	-2074.82	17679.29	8,471.8	158.5526	16.55	17,129.68	8.06
2015	3235.46	18901.30	9,290.7	193.2792	16.23	18,674.15	9.02

Source: Central Bank of Nigeria Statistical Bulletin for several years

5. EMPIRICAL RESULT

5.1. Unit Root Test

The empirical analyses started by testing the time series characteristics of the variables used, using the Augmented Dickey Fuller Unit Root Test. The essence of this is to establish the stationarity or non-stationarity of variables in order to avoid spurious regression. The trend status of each series was diagnosed using line graph as presented in the appendix, to see whether a trend is present or not. A trend variable is necessary in the ADF regression if trends are present in the series. While in the absence of trend, only the intercept should be included in testing for unit roots.

5.2. Decision Rule

Ho: $\Theta = 0$, $ai=1$ (presence of unit root, the data is non-stationary)

H1: $\Theta < 0$, $ai \neq 1$ (the data is stationary and does not need to be differenced)

If the ADF test statistics value is greater than the critical value in absolute terms at 5% level of significance, we reject Ho and accept H1. This means that there is no unit root and the data is stationary.

Table-2a. Augmented Dickey-Fuller Unit Root Test at Levels (1986-2015)

Variables	Trend status	ADF statistics	1% Critical Value	5% Critical Value	10% Critical Value	Remarks	Order of Integration
BOP	Without	-2.404596	-3.679322	-2.967767	-2.622989	NS	1(0)
M2	Without	6.061448*	-3.679322	-2.967767	-2.622989	S	1(0)
NT	Without	4.226696*	-3.737853	-2.991878	-2.635542	S	1(0)
EXR	Without	-0.075644	-3.679322	-2.967767	-2.622989	NS	1(0)
IR	Without	-0.063568	-3.769597	-3.004861	-2.642242	NS	1(0)
BCP	Without	5.730407*	-3.737853	-2.991878	-2.635542	S	1(0)
INF	Without	-3.907881*	-3.769597	-3.004861	-2.642242	S	1(0)

Source: Authors' Computation

Table-2b. ADF Unit Root Test at first difference (1986-2015)

Variables	Trend status	ADF statistics	1% Critical Value	5% Critical Value	10% Critical Value	Remarks	Order of Integration
BOP	Without	-5.731777*	-3.689194	-2.971853	-2.625121	S	1(1)
M2	Without	6.061448*	-3.679322	-2.967767	-2.622989	S	1(0)
NT	Without	4.226696*	-3.737853	-2.991878	-2.635542	S	1(0)
EXR	Without	-4.885942*	-3.689194	-2.971853	-2.625121	S	1(1)
IR	Without	-6.023773*	-3.689194	-2.971853	-2.625121	S	1(1)
BCP	Without	5.730407*	-3.737853	-2.991878	-2.635542	S	1(0)
INF	Without	-3.907881*	-3.769597	-3.004861	-2.642242	S	1(0)

Note: *(**) denotes significant at 1(5) (10) percent levels respectively.

Source: Authors' Computation.

As stated above, the major advantage of the ARDL approach lies in its identification of the co integrating vectors where there are multiple co integrating vectors. However, this technique will crash in the presence of integrated stochastic trend of I(2). To forestall effort in futility, it may be advisable to test for unit roots, though not as a necessary condition.

Table 2 (a&b) shows the unit root test results at levels and first difference respectively. The results showed that the series are both stationary at only level and first difference respectively which is the first condition for using the approach. Results from the tables showed that majority of the variables are stationary at level except balance of payment, exchange rate and interest rate. i.e did not show the probability of retention of short or long term shock over the years.

In order to correct the problem of the presence of unit root in the variables, they were differenced once. It is shown in the table 2b that Balance of Payment (BOP) Exchange rate (EXR) and Interest rate (IR) were stationary

at first difference $1(1)$. The economic implications of non-stationarity of these variables is that the proportional effect of BOP, EXR and IR will generate a persistence shock

A non-stationary time series is a stochastic process with unit roots or structural breaks. However, unit roots are major sources of non-stationarity. The presence of a unit root implies that a time series under consideration is non-stationary while the absence of it entails that a time series is stationary. This depicts that unit root is one of the sources of non-stationarity. When we run a regression analysis on a non-stationary series, it leads to specification error. The implications of these types of specification error can be serious, depending on how the serial correlation properties of the resulting error terms are handled.

Therefore, when such non-stationary time series are used in estimation of an econometric model, the Ordinary Least Square (OLS) traditional diagnostic statistics for evaluation of the validity of the model estimates such as, coefficient of determination (R^2), Fisher's Ratio (F-Statistic), Durbin-Watson (DW-Stat), t-statistic etc. become highly misleading and unreliable in terms of forecast and policy. In such series, the mean, variance, covariance and autocorrelation functions change overtime and affect the long run development of the series. The presence of unit root in these series leads to the violation of assumptions of constant means and variances of OLS

As demonstrated above, many time series variables are stationary only after differencing. Hence, using differenced variables for regressions imply loss of relevant long run properties or information of the equilibrium relationship between the variables under consideration. This means that we have to devise a way of retaining the relevant long run information of the variables. Co integration makes it possible to retrieve the relevant long run information of the relationship between the considered variables that had been lost on differencing. That is, it integrates short run dynamics with long run equilibrium. This is the basis for obtaining realistic estimates of a model, which is the driver of a meaningful forecast and policy implementation.

With this background, we shall examine the series using the application of the Autoregressive Distributed Lag (ARDL) co integration or bound test of co integration technique and its interpretation.

Table-3. Wald Test of Cointegration

Ho = variables are equal to zero jointly
H1: = variables not are equal to zero jointly

Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	3.497927	(7, 12)	0.0277
Chi-square	24.48549	7	0.0009
Null Hypothesis: C(1)=0, C(2)=0, C(3)=0, C(4)=0, C(5)=0, C(6)=0, C(7)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err.	
C(1)	-0.926975	0.288653	
C(2)	-1352.259	1045.159	
C(3)	0.314173	0.263657	
C(4)	1362.828	10063.59	
C(5)	46044.69	56605.71	
C(6)	1369.552	924.0438	
C(7)	-1854.126	12116.89	
Restrictions are linear in coefficients.			

The first step in ARDL is to test the long run relationship among these variables. We need to see if the variables are jointly significant. To do this, a Wald test procedure was conducted and the F-statistics value would be compared with the Pesaran and Pesaran table. The grand rule is that if the F-value is \geq the higher bond, we accept that there is long run relationship.

When we compare the F-value of 4 to the tabular value 4.08, we can conclude that the variables are not equal to zero jointly. i.e they have a long run relationship or cointegrate. This conclusion can also be verified using the p-value of 0.0277 which is less than the 0.05 threshold level.

The next step is to estimate the ARDL value by applying general to specific method of estimation. The table below shows the parsimonious result of the short and long run relationship

Table-4a. Parsimonious (ECM)

Dependent Variable: D(BOP)				
Method: Least Squares				
Date: 07/13/17 Time: 12:34				
Sample (adjusted): 1988 2015				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BOP(-1)	-0.778255	0.172654	-4.507597	0.0002
M2(-1)	-1740.437	822.3631	-2.116385	0.0477
NT(-1)	0.450292	0.201803	2.231340	0.0379
BCP(-1)	1694.624	725.4640	2.335917	0.0306
D(M2(-1))	2042.293	1081.089	1.889107	0.0742
D(NT(-1))	-0.726349	0.247194	-2.938376	0.0084
D(BCP(-1))	-2287.682	690.5367	-3.312905	0.0037
C	103790.5	388891.0	0.266888	0.7924
@TREND	-12512.30	41089.81	-0.304511	0.7640
R-squared	0.655702	Mean dependent var		757.1521
Adjusted R-squared	0.510734	S.D. dependent var		942929.5
S.E. of regression	659555.9	Akaike info criterion		29.89161
Sum squared resid	8.27E+12	Schwarz criterion		30.31982
Log likelihood	-409.4826	Hannan-Quinn criter.		30.02252
F-statistic	4.523093	Durbin-Watson stat		2.124313
Prob(F-statistic)	0.003294			

Table-4b. The long run relationship between the respective variables

BOP(-1)	M2(-1)	NT(-1)	BCP(-1)	D(M2(-1))	D(NT(-1))	D(BCP(-1))	C	@TREND
-0.77826	-1740.44	0.450292	1694.624	2042.293	-0.72635	-2287.68	103790.5	-12512.3
	-2236.33	0.578592	2177.466	2624.195	-0.9333	-2939.5	133363.1	-16077.4

The regression table above shows the long and short run relationship between the respective variables. The table shows the net trade (NT), money supply (M2) and bank credit to private sector (BCP) all have long run effect on the balance of payment while the differenced money supply (DM2), net trade and bank credit all showed the short run relationship with the balance of payment.

The results showed that a unit change in broad money supply will bring about 2236.33unit decrease in the balance of payment in the long run. Further investigation however showed that there would be a positive change (increase) in the BOP in the short run by 2624.195 units.

Also, a unit change in net trade would result to 0.578592unit increase in the BOP in the long run while it leads to 0.9333unit decrease in the short run.

Finally, a unit change in bank credit to private sector would cause 2177.466 increase in the balance of payment of the economy in the long run while it brings about 2939.5 unit decrease in the short run.

The result generally revealed that BOP, NT BCP and M2 all have relationship both in the short and long run.

6. SUMMARY AND CONCLUSION

From the overall analyses done on the variables, it was seen that all variables exhibited relationships both in the long and short run respectively i.e are jointly significant. The Wald test procedure was conducted and the F-statistics value when compared with the Pesaran and Pesaran table showed that the variables are not equal to zero jointly. i.e they have a long run relationship or cointegrate. This conclusion was also verified using the p-value of 0.0277 which is less than the 0.05 threshold level.

The ARDL value was estimated by applying general to specific method of estimation. The results shows the net trade (NT), money supply (M₂) and bank credit to private sector (BCP) all have long run effect on the balance of payment while the differenced money supply (DM₂), net trade and bank credit all showed the short run relationship with the balance of payment.

7. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are advocated to enhance Nigeria's BOP.

- The government through the monetary authority should ensure that the domestic money stock is consistent with the macroeconomic objectives of the country in order to maintain sustainable BOP position.
- Since money supply has negative effect on BOP in the long run, monetary authority should put adequate policies in place that will stabilise money circulation in order to avoid excess liquidity in the economy which may lead to inflation.
- It is important that the exchange rate is not overvalued, because this will result in unsustainable Balance of Payment and escalating external debt stock. In contrast, the exchange rate should find its equilibrium level to make the BOP position viable. The government should encourage export diversification non-oil sector exports should be encouraged as this will enhance BOP position in Nigeria.
- Monetary authority should make available, short, medium and long term credit to productive investments as they constitute an integral part of the growth and transformation process of an agro based economy like that of Nigeria, this will induce employment and income of the various economic agent which will have a spill-over effect on private savings and BOP stability.

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Competing Interests: The authors declare that they have no competing interests.

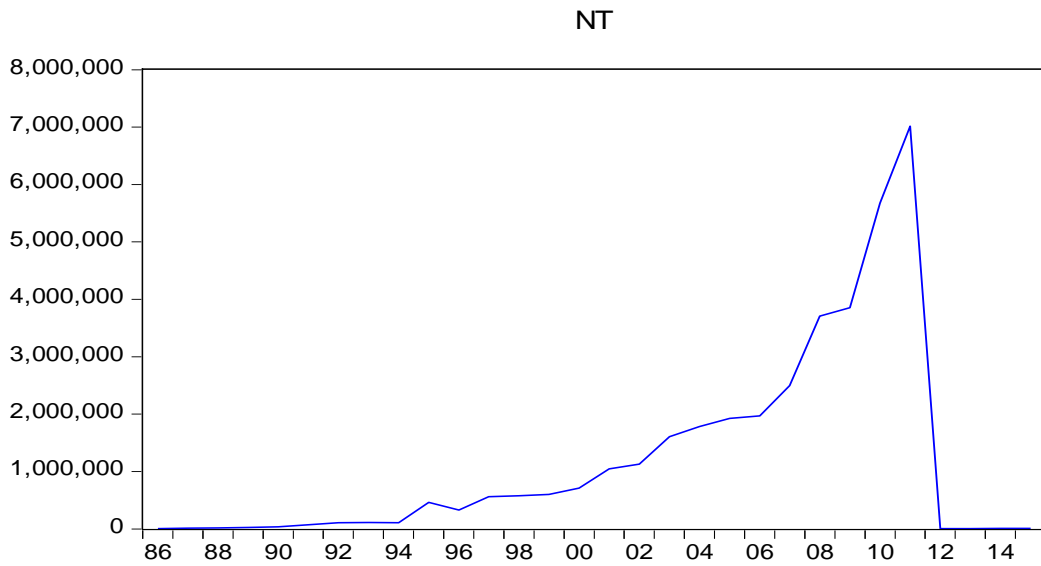
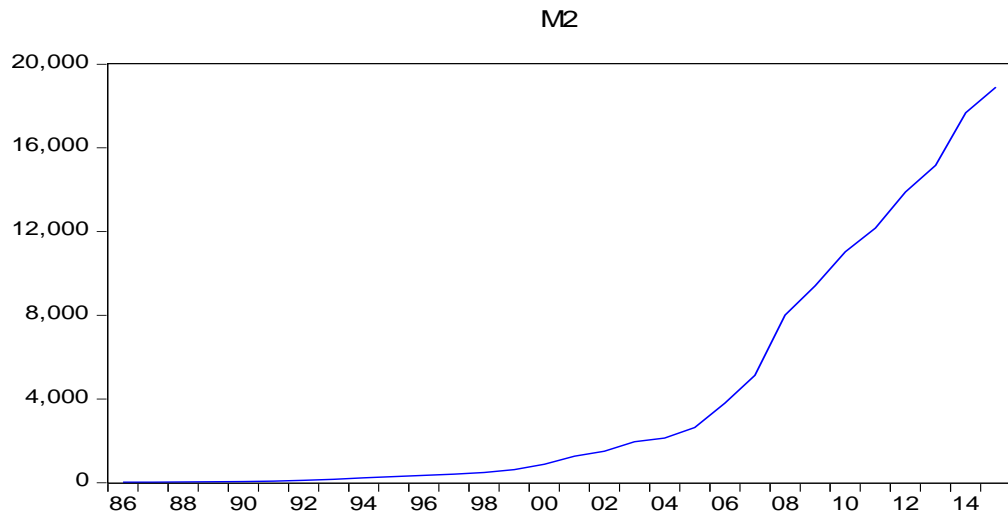
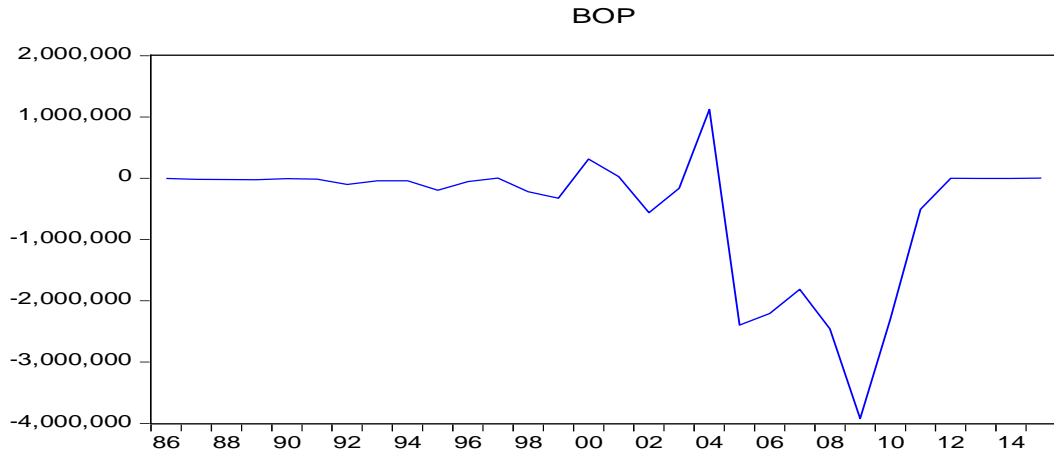
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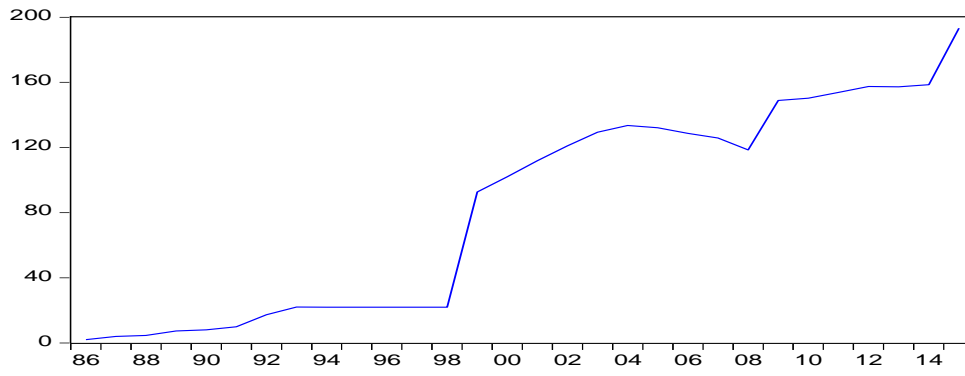
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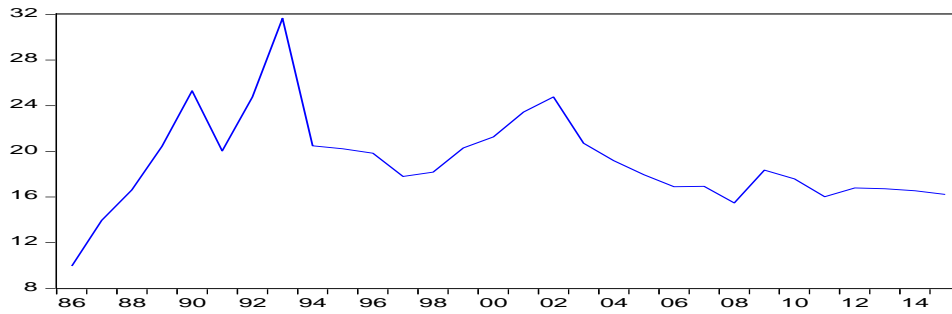
APPENDIX



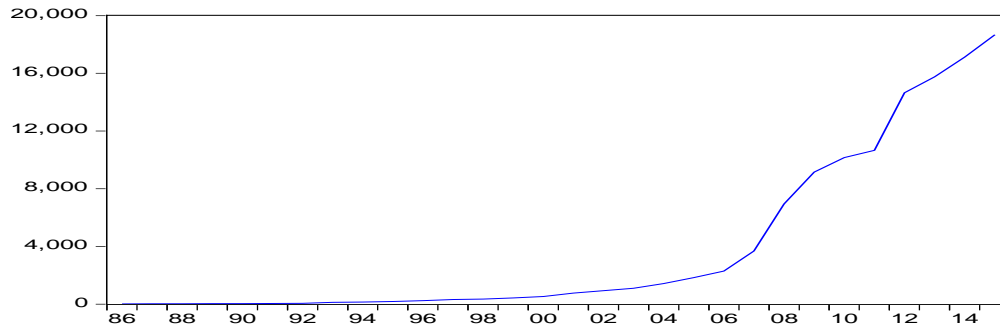
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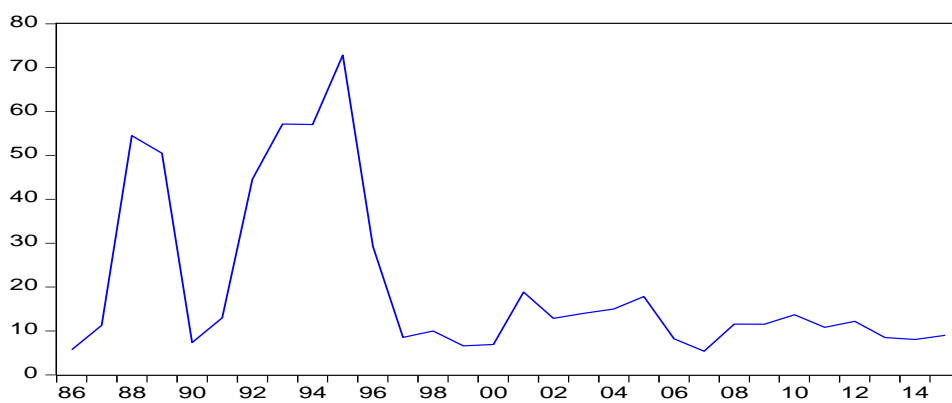
IR



BCP



INF



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